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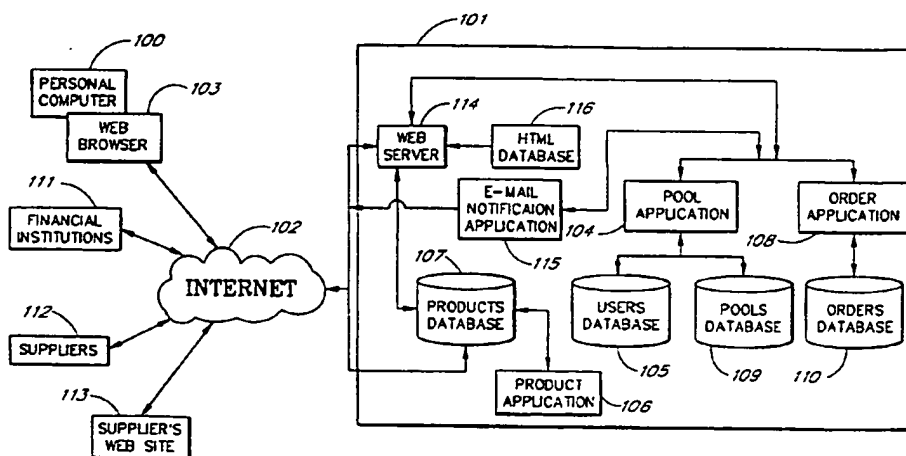
(57) Abstract

An electronic order pooling system is disclosed which allows a customer to pool its order for a product or service (70) together with orders of other customers to obtain volume discounts from suppliers (112). Using a Web site (101) or other type of publicly available network site, a customer may place an order for a product or service (70) and specify a desired discount level (90). A pool application (104) pools the customer's order with that of other customers who have specified the same product or service (70) and the same discount level (90). When a sufficient quantity of orders has been collected in a particular pool meeting the defined criteria (141), an order application (108) aggregates the orders of all customers in the pool and places a single order (144) with a supplier (112).

Description

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PUBLIC NETWORK-BASED ORDER POOLING SYSTEM

FIELD OF THE INVENTION

This invention relates to electronic commerce, and more particularly to techniques for allowing consumers to purchase products and services over the Internet or other publicly accessible network.

BACKGROUND OF THE INVENTION

Suppliers of products and services regularly offer substantial discounts to their customers for large quantity orders. The products and services for which volume discounts are available include every industry and every sector of the economy, from raw material to office equipment and supplies to consumer electronics to life and medical insurance. Large organizations, such as major corporations, governmental agencies, and educational institutions, routinely purchase products and services in large quantities, and can therefore readily take advantage of volume discounts. Small organizations and individual consumers, however, cannot take advantage of such discounts, or can do so only by experiencing significant inconvenience or incurring significant costs.

One method that small organizations and individuals can use to obtain volume discounts is to combine their purchases with other small organizations and individuals to form purchasing cooperatives. This method of obtaining volume discounts has several problems. One problem is that the small organizations and individuals interested in purchasing a product or service must identify each other, check the backgrounds of other customers who are potential participants, communicate with each other, and reach agreements with each other to form a cooperative. These tasks may be costly and time-consuming, and constitute significant impediments to the formation of such cooperatives. As a result, a cooperative is generally limited in geographic scope. This leads to the additional problem that a small organization or individual may not be able to identify a sufficient number of small organizations or individuals within its geographic region that desire a particular product or service to form a group large enough to obtain volume discounts. Another problem is that a customer, in the process of forming a cooperative arrangement, must disclose to other customers its purchasing requirements. A customer may be unwilling to share such information with other customers, who may be its competitors, out of fear that the other customers may use the information for competitive advantage.

Another method for a small organization or individual to obtain a volume discount is for the small organization or individual to purchase greater quantities of a product or service than are actually required. This method also has several problems. One problem is that the small organization or individual must commit limited financial resources to the purchase of unneeded products or services. Another problem is that the small organization or individual must incur costs associated with maintaining an inventory of unneeded products, such as warehousing and insurance.

Another method for allowing small organizations and individuals to obtain a volume discount is for a merchant to place large orders for products or services, thereby obtaining a volume discount. The merchant may then resell the products and services to small organizations and individuals at a price reflecting the volume discount obtained by the merchant. This method also has several problems. One problem is that the merchant must incur the costs of maintaining an unsold inventory, including capital costs, warehousing, and insurance, and must bear the risk that at least a portion of the products purchased will not be resold. Such costs may be passed on to the small

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organizations and individuals in the form of higher prices, which may eliminate or at least reduce the benefit of the volume discount obtained by the reseller. The present invention addresses these and other problems.

SUMMARY OF THE INVENTION

The present invention provides an electronic product purchasing system which allows a plurality of customers to pool orders for products or services together to obtain volume discounts. In accordance with the invention, the system allows a customer to place an order for a product or service, and preferably allows the customer to specify a desired discount level. The system pools the customer's order with those of other customers who have specified the same product or service and, where applicable, the same discount level. When a sufficient number of orders has been collected in a particular pool, the orders of all customers in the pool are aggregated and placed as a single order with the supplier, thereby obtaining a volume discount. The price paid by the customers for the ordered goods or services is discounted to reflect the volume discount received from the supplier. In a preferred embodiment, the system is implemented using a World Wide Web site that can be remotely accessed by the customers to enter and monitor the status of various pools. The system may be implemented on other publicly accessible networks, including proprietary networks such as America Online, or the telephone network.

An important benefit of the system is that it allows customers to obtain volume discounts even if they do not require large quantities of a particular product or service. Thus, individuals and small businesses may receive discounts similar to those received by large organizations.

Another important benefit is that it allows a customer to pool its purchases with other customers that need the same products or services and desire the same discount level, without requiring the customer to identify, communicate, and reach agreements with the other customers. The likelihood that customers will be able to pool their purchases is increased, and the need for extensive background checking and negotiation between customers is eliminated.

Another important benefit is that it allows a customer to pool its purchases with other customers that are not located in the same geographical vicinity. By increasing the number of entities and individuals that can participate in a pool, the likelihood that customers will be able to form a pool to obtain volume discounts, and the size of the discounts that may be obtained, is increased.

Another important benefit is that it allows a customer to pool its purchases with other customers anonymously. Thus, a customer can pool its orders with other customers that may be competitors, without the risk that the competitors may obtain information regarding the customer's purchases of products and services and use such information to obtain a competitive advantage.

Another important benefit is that it allows customers to obtain volume discounts without requiring them to purchase greater quantities of a product than are actually required at a particular point in time. Thus, it is not necessary for a customer to incur the costs inherent in maintaining a large inventory of a particular product.

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Another important benefit is that it allows the pool service provider to obtain volume discounts without requiring it to purchase large quantities of products in advance of need. Thus, the costs of maintaining an unsold inventory, including capital costs, effect on cash flow, warehousing, and insurance, are avoided.

Another important benefit is that it allows the pool service provider to negotiate with a plurality of suppliers for a particular product or service, and thus allows the seller to offer the product or service at the best volume discount available.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features of the invention will now be described with reference to the drawings summarized below. These drawings and the associated description are provided to illustrate a preferred embodiment of the invention, and not to limit the scope of the invention.

Figures 1a-b illustrate example Web site pages for allowing customers to select from the categories of products and services offered.

Figures 2a-c illustrate an example Web site page for allowing customers to choose among specific products offered within a particular category, and to view detailed information about the products.

Figure 3 illustrates an example Web site page for allowing customers to enter their names, addresses, credit card information, and e-mail addresses, and to select a particular discount pool.

Figure 4 illustrates a preferred set of Web site components for implementing an order pooling system in accordance with the invention, and illustrates typical customer components for accessing the system.

Figure 5 illustrates a sequence of steps that are performed by the pool application in Figure 4 in response to the submission of an order by a customer.

Figure 6 illustrates a sequence of steps that are performed by the pool application in Figure 4 to review the status of a pool of orders from customers and place orders with suppliers upon attainment of a pool threshold.

The products, product descriptions, trademarks, and trade names shown in the drawings are provided for illustrative purposes only, and are not intended to imply any affiliation between the applicant and any other company or organization.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Throughout the following description, the term "Web site" is used to refer to a customer-accessible network site that implements the basic World Wide Web standards for the coding and transmission of hypertextual documents. These standards currently include HTML (the Hypertext Markup Language) and HTTP (the Hypertext Transfer Protocol). It should be understood that the term "site" is not intended to imply a single geographic location, as a Web or other network site can, for example, include multiple geographically distributed computer systems that are appropriately linked together. The term "pool service provider" refers to the individual or entity that administers and maintains the Web site.

A preferred implementation of the order pooling system will now be described with reference to Figures 1-6. Throughout the following description, reference will be made to various implementation-specific details, including, for

example, pooling categories, discount levels, document and protocol standards, and forms used for placing orders. These details are provided in order fully to set forth a preferred embodiment of the invention, and not to limit the scope of the invention. The scope of the invention is set forth in the appended claims.

Figure 1a illustrates an example Web page that may be displayed to a customer in response to a request received through the Internet 102 (Figure 4). As depicted by Figure 1a, the Web page identifies several general categories of products and services offered through the Web site. The Web page also includes hyperlinks 10 allowing customers to request that the Web site display products and services within a selected general category. The hyperlink 10 is displayed as underlined text, but may alternatively be displayed, for example, as an icon or other graphical image. The customer can select the hyperlink 10 using any technique that is supported by the customer's computer, including, for example, clicking on the hyperlink 10 with a mouse, touching on a touch-sensitive display, or using a voice command. When the customer selects the hyperlink 10, the selected product category is conveyed to the Web site 101 (Figure 4). The Web site may then display a Web page that contains subcategories of products or services within the selected category. An example Web site page displaying additional product categories is shown in Figure 1b, and discussed below.

Figure 1b illustrates an example Web page that may be displayed to the customer in response to the selection of a hyperlink 10. The Web page identifies products or services within the selected category. The Web page also includes hyperlinks 20 allowing the customer to select a more specific subcategory of product or service. The Web page also includes hyperlinks 30 allowing the customer to select products or services from a particular supplier within the selected category. Alternately, the Web page may include hyperlinks allowing the customer to view subcategories of products with identified common characteristics. For example, the Web page may provide hyperlinks allowing customers to select products within a particular price range or products that share certain specifications. The Web page may also provide hyperlinks allowing customers to select products for which pools are about to close. For example, a hyperlink may allow a customer to select all products of a category or subcategory that have pools of a certain discount level that will close in the next hour, day, or week. In addition, the Web page includes hyperlinks 40 allowing the customer to view the Web sites maintained by suppliers identified on the Web page.

Any of a variety of other types of features could be included on this Web site for assisting customers in locating products, services, and pools. For example, the Web site could implement a search engine for allowing users to search the site. Further, as described below, the site could implement an e-mail notification service for notifying customers, based on customer-specified preferences, of pool status, including the pool creation and closure events.

When the customer selects the hyperlink for a subcategory of products or services 20, 30 the selected subcategory is conveyed to the Web site 101. The Web site may then display a Web page that contains products or services within the selected subcategory. An example Web page displaying products is shown in Figures 2a-c, and discussed below. In other implementations, more or less than two levels of categories and subcategories may be displayed. The Web site may offer products and services of every kind sold. In the case of products, these may include physical goods from raw materials to industrial components to office equipment and supplies to consumer

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electronics to vehicles to machine tools to clothing. The services offered may range from life and health insurance to product maintenance services to utility services to periodical subscriptions to entertainment services, such as tickets for concerts and sporting events.

Figures 2a-c illustrate an example Web page that may be displayed to the customer in response to the selection of a hyperlink 20. The Web page identifies products within the selected subcategory. For each product displayed, the Web page displays the name of the supplier, the name of the product, photographic images of the product 70, the manufacturer's suggested retail price (MSRP) of the product, a detailed description of the product, and hyperlinks allowing the customer to obtain additional information regarding the product or the supplier's product line, or to contact the supplier. The Web page may not display any image relating to each product, or may display a plurality of images. The images may be photographic or artistic. The information and images may be stored in the products database 107. The Web page may also display additional information relating to the products featured on the page, including reviews, warranty information, simulations, animations, or video presentations regarding the product.

In the preferred embodiment, information displayed regarding the product or service is obtained through the Internet 102 from World Wide Web sites maintained by suppliers of the products or services 113. Alternatively, the information may be obtained from third party Web sites, or may be entered manually by the pool service provider. In addition, the Web page may include hyperlinks allowing customers to view additional information relating to the products displayed on the Web page.

In addition, the Web site 101 may offer customers the ability to initiate the creation of pools for products or services that are not currently offered by the Web site 101. The Web site 101 may, through commercially available software, offer customers the ability to communicate via "chat rooms" or message boards regarding new products or services that should be offered through the Web site 101. The customers could then request that the pool service provider add new products or services to the Web site 101. The Web site may also offer customers the ability to enroll on a "waiting list" for a product or service not currently offered. In that way, the pool service provider could estimate customer demand for the proposed product or service. Alternately, customers may be allowed to create their own Web pages on the site that would offer the new products or services. Creation of the Web page, including providing images and descriptions, and formatting the HTML documents, could be performed by the pool service provider or the customer that requests the addition of the product or service to the Web site 101 using commercially-available software. The Web site may also, through the product application 106 (Figure 4) allow potential suppliers to express their interest in having their products or services offered through the Web site. The potential suppliers could identify the products or services that they would offer and indicate the volume discounts to which they would commit.

The Web site may also offer customers the ability to subscribe to a personalized e-mail notification service. Pursuant to the request of a customer, the e-mail notification application 115 (Figure 4) may generate an e-mail advising customers of events relating the Web site, e.g., the opening of pools for a specific product or the opening of pools for products not previously offered through the Web site.

The Web page also includes hyperlinks 50 (Figure 2a) allowing the customer to initiate the process for entering an order into a pool for a desired product. The hyperlink 50 is displayed as underlined text, but may alternatively be displayed, for example, as an icon or other graphical image. Alternatively, the hyperlink may be the image 70 of the product. In addition, the Web page displays information 60 regarding the current number of customers that have entered into pools for each product featured on the page. The Web page also displays information regarding the discount levels available from each pool for each product, and the maturity date of each pool for each product, i.e., the estimated date on which the pool will be closed and an order will be placed with a supplier. As discussed below, the maturity date may be estimated using historical data. When the customer selects a hyperlink 50, the selected product is conveyed to the Web site 101. The Web site then displays a Web page that contains a form allowing the customer to enter identification information and place an order. An example Web page displaying identification and ordering forms is shown in Figure 3, and discussed below. In the preferred embodiment, the discount levels offered to customers are calculated so as to provide a margin of profit for the pool service provider; i.e., the price offered by the pool service provider to the customer is greater than the pool service provider's cost. In other embodiments, the pool service provider may charge a fee calculated as a percentage of the order price, a fixed fee for each order, or require a customer to pay a one-time or periodic subscription fee for use of the Web site. The pool service provider may also offer customers additional discounts based on the volume of their orders through the Web site.

Figure 3 illustrates an example Web page that may be displayed to a customer in response to the selection of a hyperlink 50. The Web page allows the customer to indicate whether he or she is a new or returning customer, to state his or her name, physical address, and e-mail address, and to identify a credit card type, number, and expiration date. The Web page may also include fields (not shown) for allowing a customer to identify himself or herself by a customer code, or for allowing a customer to specify a shipping address that is different from his or her billing or residence address. The Web page may also allow the customer to specify payment through a prearranged account with the pool service provider, by gift certificate, smart card, electronic funds transfer (EFT), or COD. Alternatively, the Web page may allow the customer to indicate a purchase order number, or may accept payment through a publicly available electronic wallet system. The Web page also displays information regarding available order pools 80, including the date the pool opened for orders, the discount rate, and the estimated date that the pool will be closed and orders will be placed. The information entered by a customer may be transferred via the public network to the Web site 101 using standard encryption methods.

In the preferred embodiment, each pool has a threshold. Once the threshold is attained, the pool is closed to further orders from customers, and an order is placed with the supplier. The threshold for each pool is set by the pool service provider, preferably as the quantity of the product or service necessary to obtain the desired level of volume discount. For example, through negotiations with the supplier 112 (Figure 4), the pool service provider may determine that the supplier 112 will provide a discount of 10 percent for an order in excess of x units. Alternately, the pool service provider could ascertain volume discounts offered by the supplier 112 through review of publicly available price sheets or through the Internet 102. In other embodiments, the threshold could be set as a fixed number of days

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following the opening of the pool. In other embodiments, the pool service provider could establish a plurality of thresholds for a pool, and close the pool upon the attainment of the earliest threshold, the latest threshold, or a combination of thresholds.

In the preferred embodiment, the customer is allowed to select from a plurality of pools, each pool having a different discount rate, different threshold, and different maturity date. For example, the pool service provider may determine that it can obtain a discount of 10 percent for an order in excess of x units, 20 percent for an order in excess of $2x$ units, and 30 percent for an order in excess of $3x$ units. The discounts may be obtained from the same supplier, or from a plurality of suppliers. Pools may also be organized for customers desiring enhanced features or services with their product order. For example, pools may be created that provide extended warranties, training, enhanced support services, or packages of accessories. In other embodiments, there may be only one pool.

In alternative embodiments, the maturity date displayed by the Web page may be a fixed number of days from the date of the customer's inquiry, rather than the date on which the threshold is actually estimated to be reached. For example, the Web page may display that orders for the 10 percent discount pool will be placed in 12 days, for the 20 percent discount pool in 28 days, and for the 30 percent discount pool in 40 days, regardless of how many orders have been received into the pool, and regardless of how close the pool is to meeting its threshold. By displaying the maturity date as a fixed number of days from the date that a customer places a pool order, the pool service provider may avoid concentrating the flow of orders into pools in the time period immediately preceding their closing. Accordingly, the Web site 101 would tend to receive orders for pools at a more uniform and predictable rate. The pool service provider can set the fixed date as a function of the number of days needed to attain the pool threshold in previous pools, such as the average number of days that it has taken to attain the threshold for the pool, or the average number of days that it has taken to attain the threshold adjusted for seasonal factors. Alternately, the pool service provider can employ standard statistical tools to adjust the fixed date to create a safety margin; i.e., the pool service provider may add a fixed number of days or a fixed percentage to the historical average, or may add one or more standard deviations. The Web site may display the estimated order date as a fixed number of days "or less," i.e., 12 days or less, to reflect the fact that the fixed date is the latest date that the pool service provider expects to place an order with its supplier.

The pool service provider may aggregate the orders from multiple pools into a single order to a supplier to obtain greater volume discounts. The pools that are aggregated may be for the same product or service, for different products or services from the same supplier, or for different products and services that can be obtained from the same supplier. The pool service provider may regularly aggregate such orders, such as on a monthly or quarterly basis, and may contract in advance with one or more suppliers to place such regular orders. The pools may be displayed in ascending or descending order by numerous variables, including amount of discount, date pool opened to orders, and maturity date.

The Web page includes "radio" buttons 90 allowing the customer to select a particular pool for entry of an order (Figure 3). A customer may select an order pool by clicking on the radio button corresponding to the desired pool.

In other implementations, the Web page may allow a customer to select a pool by another method such as by selecting a hyperlink, selecting a pool from a pull-down menu, or entering text. If the customer is a new customer, the Web site displays a document of standard terms and conditions (not shown) governing the use of the site. The customer is permitted to proceed with the order process only if he or she indicates his or her agreement to the terms. In the

5   preferred embodiment, the customer indicates his or her agreement by clicking on a hyperlink. Alternatively, the Web site may allow the customer to indicate his or her agreement by entering text, such as requiring the customer to type the words "I agree," click a radio button, or select from a pull-down menu. The Web page further provides a hyperlink 110 for allowing a customer to enter an order for the selected product into the selected order pool. The hyperlink 110 is displayed as a text box, but may alternatively be displayed, for example, as underlined text, an icon, or other

10   graphical image. In one embodiment, the submission of an order represents a commitment by the customer to purchase the designated product(s) or service(s) upon the maturity of the pool.

After the customer selects the hyperlink 110 entering his or her order into a particular pool, the customer is presented with one or more additional Web pages (not shown) confirming that his or her order has been entered into the pool. The Web site may also send a confirming message to the customer by e-mail, facsimile, postal mail, or

15   telephone message. The confirming message may contain a unique code identifying the customer's order. The customer may enter the unique code into a form on a Web page in the Web site to obtain information regarding the customer's order or the pool, including the updated maturity date, the date on which the pool actually closed, the date an order was actually placed with a supplier 112 (Figure 4), the estimated date of shipment, or the actual date of shipment. The Web page may also display information regarding the status of shipment, or may include a hyperlink to

20   a Web page maintained by the common carrier that provides additional information regarding the status of shipment. The unique code may also be in the form of a hyperlink. The Web page corresponding to the hyperlink may display information regarding the customer's order as described above. A message confirming an order by e-mail may include the unique code as a hyperlink.

Figure 4 illustrates the basic hardware and software components that are typically invoked in the above-

25   described process. As depicted by this drawing, the customer accesses the Web site 101 using personal computers (PCs) 100 or other general purpose computers that have access to the Internet. The customer may, alternatively, access the Web site 101 using special purpose devices such as network computers (NCs), dedicated devices, or special-purpose computing devices designed for accessing the Internet such as Microsoft WebTV systems. The customer's computer may run commercially-available Web browser applications 103 such as Microsoft Internet

30   Explorer or Netscape Navigator, which implement the basic World Wide Web standards such as HTTP and HTML. The customer's computer may also run a commercially available e-mail application such as Microsoft Outlook, Netscape Navigator, or Qualcomm Eudora, which supports the use of hyperlinks. The e-mail application and the browser may be integrated with one another, and/or may be integrated with other application programs or the operating system. The e-mail application may also be provided through a third-party Web site, such as Microsoft HotMail or Yahoo!Mail.

In the embodiment described herein, the Web site 101 comprises a computer system and associated content that are accessible via the Internet 102. The Web site 101 may optionally include content that spans multiple Internet domains, and/or may be implemented using physical servers that are geographically remote from one another. In other embodiments, the Web site 101 may be in the form of an intranet site, in which case the computers 100 may be coupled to the site solely by a private network. For example, the Web site 101 may be in the form of a purchasing department site for the internal use of a corporate, educational, or governmental entity.

In other embodiments, the Web site 101 may be replaced with another type of network site. For example, the functions described herein could alternatively be implemented on a hypertextual site or browsing area of an online services network such as America Online or CompuServe, in which case customers may access the site using software that implements nonstandard document formats and transfer protocols. The functions described herein could also be implemented on any other public or private communications network accessible by customers, for example, by a telephone-based system employing touch-tone response voice menus, or voice recognition. The functions described herein could also be implemented through wireless networks, such as PCS, or through a postal-based catalog and mail order system.

As further depicted by Figure 4, the Web site 101 includes a commercially available Web server application 114, such as Microsoft BackOffice or Lotus Domino. The Web server application 114 accesses an HTML database 116, a products database 107, a pool application 104, and an order application 108 in response to the actions of customers. A product application 106, a users database 105, a pools database 109, an orders database 110, and various back-end components (not shown) are also used for this purpose. The various databases 105, 107, 109, 110, and 116 are shown separately for illustrative purposes, but may be integrated within a single database. Further, it should be understood that the databases could be implemented using tables, flat files, linked lists, and other data structures without the use of a database product.

As depicted in Figure 4, the pool application 104 implements an online process for allowing customers to register with the site 101 as returning or new customers, and to enter personal information. The pool application accesses a users database 105 that includes information about customers that have registered (such as by placing an order) with the Web site 101. This information typically includes, for example, the names, e-mail addresses, physical addresses, and credit card information for such customers. The information may also include shipping addresses, user identification codes, account passwords, and account history, including order history. The pool application also interfaces with the pools database 109 that includes information relating to each of the pools. The information may include for each pool, the product offered, the discount offered in the pool, the date the pool opened, the date each order was received into the pool, and the quantity of each order received into the pool. The information may also include historical data for each pool.

In the preferred embodiment, the pool application 104 updates the users database 105 and the pools database 109, monitors pools to determine whether pool thresholds have been met, determines maturity dates, and invokes the order application 108 to place orders with suppliers 112. The order application 108 interfaces with the

pool application 104, initiates the placement of orders with suppliers 112, obtains payment from financial institutions 111, and invokes the e-mail notification application 115 to notify customers that orders have been placed with suppliers 112. The e-mail notification application 115 generates e-mails advising customers that orders have been placed with suppliers 112 and transmits the e-mails to customers through the Internet 102. The product application 106 accesses and maintains the products database 107. The products database 107 contains information regarding each product or service for which a pool is offered.

Figures 5a-b illustrate a sequence of steps that are performed by the pool application 104 to accept, verify, enter, and confirm a customer's order. The process is executed after the customer has selected a product or service. As depicted by step 120, the pool application 104 receives the customer's selection of a particular product or service. The pool application 104 then displays the customer form (step 121). The customer form is generally in the format of Figure 3. The pool application then reviews each field to determine whether the customer has entered valid data (step 122). If the customer has not entered valid data, the pool application returns an error message (step 123), and redisplays the customer form (step 121).

If the customer has entered valid data in each field, the pool application 104 determines whether the customer is a new or returning customer (step 124). In the preferred embodiment, the pool application 104 reviews the data entered by the customer in the field requesting that the customer identify himself as a "New Customer" 81 (Figure 3). In addition, the pool application 104 reviews the users database 105 to determine whether the customer has established an account with the Web site. Various alternatives are possible. For example, each customer could be assigned a customer identification code that could be used to verify the customer's status. The pool application could request that the customer enter the customer identification code as an alternative to entering identifying data on the customer form (Figure 3). Alternatively, the customer identification code could be stored on the customer's PC or other capable computing device as a "cookie" for review by the pooling application in subsequent sessions.

If the customer is a new customer, the pool application 104 displays an HTML document (not shown) containing the standard terms and conditions governing the use of the Web site, and requests that the customer indicate his or her agreement to those terms by clicking on a hyperlink (step 126). In alternative embodiments, the customer may indicate his or her agreement by entering text into a form, such as "I agree," clicking a radio button, or selecting from a pull-down menu. If the customer does not indicate his or her agreement, an error message is returned (step 128) and the terms and conditions document is redisplayed (step 126).

If the customer is a returning customer, or a new customer that has indicated his or her agreement to the standard terms and conditions, the pool application 104 electronically transmits the customer's payment information to the appropriate bank or other financial institution 111 (Figure 4) over the Internet 102 or other communications channel for verification (step 129). The transmission may be encrypted. Upon receipt of a response from the bank or other financial institution, the pool application 104 determines whether the customer has sufficient funds or credit to proceed with the transaction (step 130). If the customer has insufficient funds or credit for the transaction, the pool application 104 displays an error message (step 131) and redisplays the customer form (step 121). Alternately, the

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pool application 104 may verify the customer's available funds through another public network, or through a private network, such as a dial-up credit verification system.

If the customer has sufficient funds or credit to proceed with the transaction, the pool application 104 accesses and updates the pools database 109 (Figure 4) to reflect the addition of the customer's order to the selected pool (step 132). The pools database 109 may include data reflecting each order placed into each pool, including the identity of each customer and the quantity ordered by each customer. The pool application then accesses and updates the users database 105 (Figure 4) to reflect the customer's order (step 133). The pool application 104 then confirms to the customer that the order has been entered into a pool (step 134). As further depicted in Figure 4, the pool application 104 monitors the pools database 109 to determine whether pool thresholds have been met, to generate information regarding the pools, and interfaces with the order application 108 upon attainment of the pool threshold.

Figure 6 illustrates a series of steps performed by the Web site 101 through the pool application 104 and the order application 108 to monitor the pools database, generate information regarding the pools, and order products or services upon attainment of pool thresholds. Initially, the pool application accesses the pools database 109 (Figure 4) to calculate the estimated closing and order placement date of the pool (step 140). The pool application 104 calculates the maturity date of the pool as

$$MD = SD + \frac{Q}{R}$$

where MD is the estimated maturity date of the pool, SD is the start date, or the date on which the pool opened, Q is the quantity still needed for the pool to attain its quantity threshold, and R is the daily rate of orders. In alternative embodiments, the estimating closing time may be further calculated to an estimated hour or minute. In the preferred embodiment, R is the historical average rate of orders received by pools for the same product and discount level, and is generated periodically by the pool application based on historical data. The average may be adjusted to reflect for seasonal variations, product life cycle, and changes in price and terms on which the product is offered, and greater or lesser weight may be given to order rates in recent periods. R may also be based in whole or in part on order rates experienced by pools for similar, but not identical, products or consumer demand for the product as reflected in orders placed through other channels of distribution, such as home shopping services and other Internet retailers, or as reported in industry or trade journals. In addition, a safety factor may be added to the maturity date, such as by adding a fixed number of days to the estimate, increasing the estimate by a fixed percentage, or increasing the estimate by a function of the standard deviation of the historical order rate, e.g., increasing the estimate by 0.7 or 1.5 deviations from the mean. If the pool application 104 determines that the threshold has not been met for the pool being examined, the pool application's 104 review of the pool is complete for this interval (step 142).

If the pool application 104 determines that the threshold has been met for the pool being examined, the pool application 104 interfaces with the order application 108 (step 143). For each customer that has entered the pool, the order application 108 charges the identified payment account by communication with the designated financial institution 111 through the Internet 102 or other communications channel (step 143). The transmission may be encrypted. The order application 108 then places an order with the supplier 112 for the products ordered in the pool

-11-

through the Internet 102 (step 144). The order application 108 then accesses and updates the orders database 110 to reflect the placement of the order with a supplier 112. The orders database 110 may include information reflecting the pool for which an order was placed, the product or service ordered, the supplier from whom the product or service was ordered, the date each order was placed, and the price paid. In other embodiments, the order application 108 may place an order through any other public or private network. For example, the order application 108 may communicate the order to the supplier 112 through a private communications network, through a dial-up modem link, may generate a purchase order and transmit it to the supplier 112 via facsimile, or communicate the order by voice message. Alternately, the order application 108 may display a message to the pool service provider indicating that the pool threshold has been met, and advising the pool service provider to place the order. The pool service provider would then place the order through any means accepted by the supplier 108. Alternately, the order may be placed with a plurality of suppliers. The order application 108 provides information to a system for providing shipping and handling (not shown) (step 145). The order application 108 then invokes the e-mail notification application 115 to generate an e-mail message to customers advising them that the pool has closed and that the products or services have been ordered (step 146). The order application then interfaces with the pool application 104, providing data to the pool application 104 indicating that the order for the pool has been placed. Depending on the business relationship between the pool service provider and the supplier 112, the supplier may ship the product directly to the customer, or may ship the product to the pool service provider, which would then deliver the product to the customer. If the supplier 112 is to ship the product directly to the customer, the order application 108 electronically transmits shipping information for each order in the pool to the supplier 112 with the order. The pool application 104 then accesses the pools database 109 to create and open a new pool, and accesses the users database 105 to reflect the placement of the customers' orders (step 148).

The pool application 104 repeats the process illustrated in Figure 6 for each open pool. In the preferred embodiment, the process illustrated in Figure 6 is performed one time each day at a predetermined time, for example, at 12 a.m. In alternative embodiments, the process may be performed at any other interval, for example, every hour or every other day, or on a continuous basis.

Although this invention has been described in terms of certain preferred embodiments, other embodiments that are apparent to those of ordinary skill in the art, including embodiments which do not provide all of the features and advantages set forth herein, are also within the scope of this invention. Accordingly, the scope of the present invention is intended to be defined only by reference to the appended claims. In the claims which follow, reference characters used to designate claim steps are provided for convenience of description only, and are not intended to imply any particular order for performing the steps.

Claims

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WHAT IS CLAIMED IS:

      1.   A computer-implemented method for pooling orders of customers for a product or service in order to obtain a volume discount, comprising:

          (a)   on a network site of a publicly-accessible network, providing information about a pool for aggregating orders for the product or service;

          (b)   receiving orders for the product or service over the publicly-accessible network from a plurality of customers, and adding the orders to the pool;

          (c)   monitoring the pool to determine whether a predetermined threshold has been attained, the threshold representing a quantity at which a volume discount is available from a seller of the product or service; and

          (d)   when the predetermined threshold has been attained, initiating placement of an order with the seller on behalf of a plurality of customers within the pool.

      2.   The method of Claim 1, wherein the predetermined threshold is a number of units of the product or service required to obtain the volume discount from the seller.

      3.   The method of Claim 1, wherein the predetermined threshold is a combined monetary amount represented by the orders within the pool.

      4.   The method of Claim 1, wherein step (a) comprises providing on the network site information about a current quantity of the pool and a corresponding threshold for closing the pool.

      5.   The method of Claim 1, wherein step (a) comprises providing on the network site an estimated maturity date of the pool.

      6.   The method of Claim 1, wherein step (b) comprises posting at least one electronic form that is adapted to be filled out and electronically submitted by a customer to submit an order.

      7.   The method of Claim 6, wherein the electronic form is part of a World Wide Web page.

      8.   The method of Claim 1, wherein step (b) comprises receiving customer payment and shipping information over the network.

      9.   The method of Claim 8, wherein step (b) comprises receiving and verifying a credit card number for at least one customer.

      10.   The method of Claim 1, wherein step (a) comprises providing information about a plurality of different pools for the same product or service, wherein different pools of the plurality have different thresholds and provide different volume discounts, and wherein step (b) comprises determining a pool to which an order from a customer corresponds.

      11.   The method of Claim 1, wherein step (d) comprises automatically transmitting the order to the seller.

      12.   The method of Claim 11, wherein step (d) further comprises transmitting shipping information of the plurality of customers of the pool to the seller.

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13.   The method of Claim 1, wherein step (d) comprises notifying a human operator that the threshold has been reached, to allow the operator to place the order with the seller.

14.   The method of Claim 1, wherein step (d) further comprises notifying members of the pool by e-mail of placement of the order with the seller.

15.   The method of Claim 1, further comprising notifying a customer by e-mail of formation of a new pool for a user-specified product or service.

16.   A network site that is accessible to users of a publicly-accessible network to allow users to pool orders for products or services with other customers, the network site comprising:

a computer system coupled to the network, the computer system including a database of products and/or services offered through the network site, the database accessible to users of the site;

order processing code which runs on the computer system and processes orders from customers for products and/or services, the order processing code including pool processing which creates pools for customer orders, aggregates customer orders into pools, and initiates orders with sellers for pools of customer orders upon the attainment of predetermined thresholds.

17.   The network site according to Claim 16, wherein the predetermined thresholds include a quantity of units required to obtain a volume discount.

18.   The network site according to Claim 16, wherein the predetermined thresholds include a monetary quantity needed to obtain a volume discount.

19.   The network site according to Claim 16, wherein the pool processing code concurrently implements a plurality of different user-selectable pools for the same product or service, wherein different pools of the plurality have different thresholds and provide different volume discounts.

20.   The network site according to Claim 16, further comprising executable code which runs on the computer system to calculate an estimated maturity date for a pool based on historical data, and posts the estimated maturity date on the network site for viewing by users.

21.   The network site according to Claim 16, wherein the network site is implemented as a World Wide Web site.

22.   The network site according to Claim 16, wherein the pool processing code automatically submits an order on behalf of customers of a pool when a threshold for the pool is reached.

23.   The network site according to Claim 16, further comprises executable code which runs on the computer system to provide an e-mail based notification service which notifies users of user-specified pool status events.

24.   A computer system for enabling users of a publicly-accessible network to obtain volume discounts on products and/or services, comprising:

means for communicating to users information about an ongoing pool for purchasing a product or service at a volume discount;

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means for receiving orders for the product or service from a plurality of users of the publicly-accessible network, and for combining said orders within a pool; and

means for determining whether the pool has reached a threshold needed to obtain a volume discount from a seller of the product or service.

25.   The computer system of Claim 24, wherein the means for receiving orders maintains multiple pools for the same product or service, wherein different pools of the plurality have different thresholds and provide different volume discounts.

26.   The computer system of Claim 24, further comprising means for estimating a maturity date of a pool.

27.   The computer system of Claim 24, further comprising means for notifying customers by e-mail of pool status information.
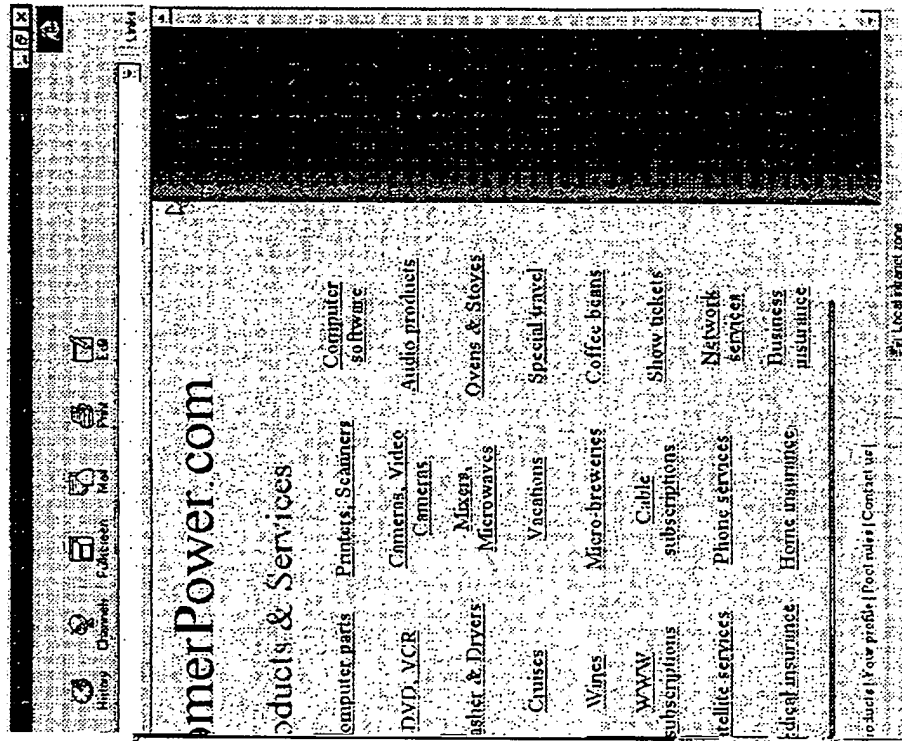
FIG. 1A
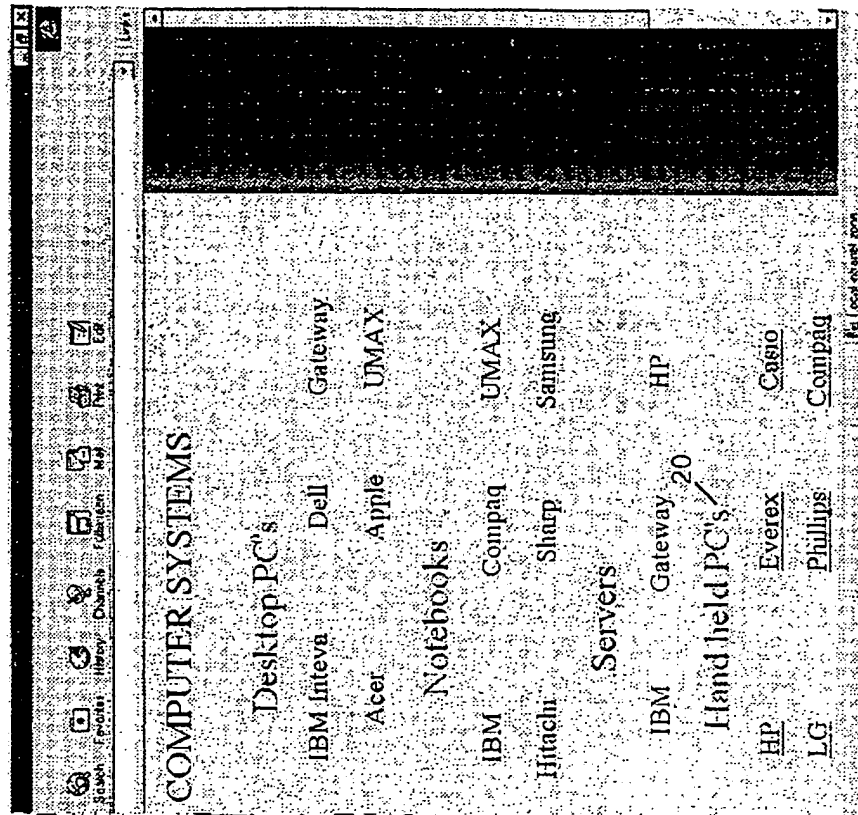
FIG. 1B

CustomerPower.com

Hand-held PC's

Join the NINO pool!

Philips Nino 312

MSRP

$399.00

Nino.philips Nino keeps you up to date when you're on the go. Access your important information with this lightweight, pen-based personal companion. Nino's unique ergonomic design allows one-handed operation, or you can go hands-free with voice commands. Since it's based on the Windows® CE operating system, it integrates seamlessly with your familiar desktop applications.

In addition to U.S. English, Nino is available in International English, German and French language versions. All language versions come in 4MB and 8MB configurations. To view datasheets of all Nino 300

Join the Casiopea pool!

Casio

Casiopea E-11

MSRP

$599.95

E-11

Casio Computer Co., Ltd.
Product Name: Cassiopeia E-11
E-mail: info@casio-usa.com
Phone: 1-888-204-7765
Product Description: The CASSIOPEIA E-11 features a big, easy-to-read 240 x 320-dot LCD screen in a compact configuration. The screen's backlight provides easy viewing of data, even in the dark. Data input and other operations are performed either by using a stylus on the touch screen or pressing the hardware buttons on the CASSIOPEIA E-11. Other features

FIG. 2A

In addition to U.S. English, Nino is available in International English, German and French language versions. All language versions come in 4MB and 8MB configurations. To view datasheets of all Nino 300 models, click here.

Nino is the affordable, efficient way to access Internet Information Services and keep track of schedules, contacts, tasks, and e-mail. Everything you need: Everywhere you go.

Included Software
Microsoft Windows CE for Palm-size PC, Microsoft Pocket Outlook; NoteTaker; Voice Recorder; Channels; Calculator; Solitaire; Tegic T9 smart keyboard; ART Pocket Commander, ART smARTwriter, Nino Expense Manager.

operations are performed either by using a stylus on the touch screen or pressing the hardware buttons on the CASSIOPEIA E-11. Other features include a CompactFlash-card slot, serial port, and irDA port; in addition to a built-in microphone and speaker for voice recording and playback. The CASSIOPEIA E-11 comes with a cradle for automatic data synchronization with a desktop PC, so that both data files are up-to-date. The CASSIOPEIA E-11 comes with Calendar, Contacts, and Tasks personal information management functions built-in. The data of these functions can be synchronized with Microsoft Outlook using ActiveSync™.

Join the Stylus pool!

Join the Palm III pool!

Everex Stylus		Palm III
MSRP		MSRP
399.00		$399.00

50

Everex
Product Name: Everex Freestyle A12/A15/A20   2Mb of memory to store approximately 6000 addresses. 3000 appointments.

FIG. 2B

X Tech - Microsoft Internet Explorer

View Go Favorites Help

Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit

http://icp01/chp/Products/HANDHELD/HandheldPC.html

E-mail: support@everex.freestyle.com
Phone: 1-888-EVEREX-9

Product Description: At a mere 5.3 ounces, the Everex Freestyle combines the power of Microsoft Windows CE 2.0 with innovate features like a silent vibrating alarm, rechargeable batteries and 8MB of upgradable system memory for storing thousands of contacts and appointments.

Download email with the Executive's 33.6 FAX/Modem.

Use the CompactFlash slot for extra memory or wireless support. And in the office, the Freestyle's foldable

MobileCradle instantly synchronizes its data with your desktop or notebook PC

Included Software
Microsoft Windows CE for Palm-size PC; Microsoft Pocket Outlook; NoteTaker, Voice Recorder, Channels; Calculator; Solitaire; Tegic T9 smart keyboard; ART Pocket Commander; ART smARTwriter; Nino Expense Manager.

1500 to do items, 1500 memos, 200 e-mail messages

an Infrared connection to let you just aim and beam your data, notes, business cards ... to other Palm III users:

Enhanced PIM applications, with Date Book, Address Book, Mail (Windows only), To Do List, Memo Pad as well as the latest expense management software (Windows only). Palm OS 3.0 and Graffiti hand writing recognition software.

Drag and drop links to MS Excel and Word. Desktop import/export formats: CSV, TAB delimited and TXT.

Each Palm III comes *COMPLETE* with Palm Desktop organizer software, PC cradle, stylus, protective flip cover or pouch and even batteries. A small size (4.7" tall) and only 6 oz to fit in your shirt pocket or purse and let you easily carry tons of personal information with you that you can access instantly, anywhere.

|Home|Products|Computers|Contact us|

FIG. 2C

3COM PALM III MSRP $399.00

80

81

New
Customer   ⊙ Yes   ○ No

FIRST NAME   John   LAST NAME   Smith

Address   33 Royel Street

City   Merselle   State   KA   Zip   51725

Exp. date   09/01/93   e-mail   John@ccc.net

Credit
card   xxx-xxxxxxxx   Visa ⊙   Master ○   Amex ○

90

○   10% Discount pool - estimated shipping in 7-10days

○   20% Discount pool - estimated shipping in 21-25days

⊙   Max Discount pool (30% or more) - est. shipping in 35 days

110

Jump in the POOL

FIG. 3

FIG. 4

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┌─────────┐
│ FIG. 5A │
├─────────┤
│         │
│ FIG. 5B │
│         │
└─────────┘
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FIG. 5

┌──────────────────────────┐
│ RECEIVE CUSTOMER   │ ─120
│ PRODUCT SELECTION   │
└──────────────────────────┘
              │
              ▼
┌──────────────────────────┐ ─121
│   DISPLAY CUSTOMER   │◄──────────────┐
│   FORM   │   │
└──────────────────────────┘   │
              │   │
              ▼   │
         ╱────────╲ ─122   │
        ╱   DID   ╲   ┌─────────────────┐ ─123
       ╱ CUSTOMER   ╲   NO   │   │
      ╱ VALID DATA IN ╲──────►│ RETURN ERROR   │
       ╲ ALL FIELDS ╱   │   MESSAGE   │
        ╲   ?   ╱   └─────────────────┘
         ╲────────╱
              │ YES
              ▼
         ╱────────╲ ─124
        ╱   IS   ╲
       ╱ CUSTOMER   ╲   NO
      ╱   A NEW   ╲──────────────────────┐
       ╲ CUSTOMER   ╱   │
        ╲   ?   ╱   │
         ╲────────╱   │
              │ YES   │
              │   │
        ──────┴─────────────────────────────┘
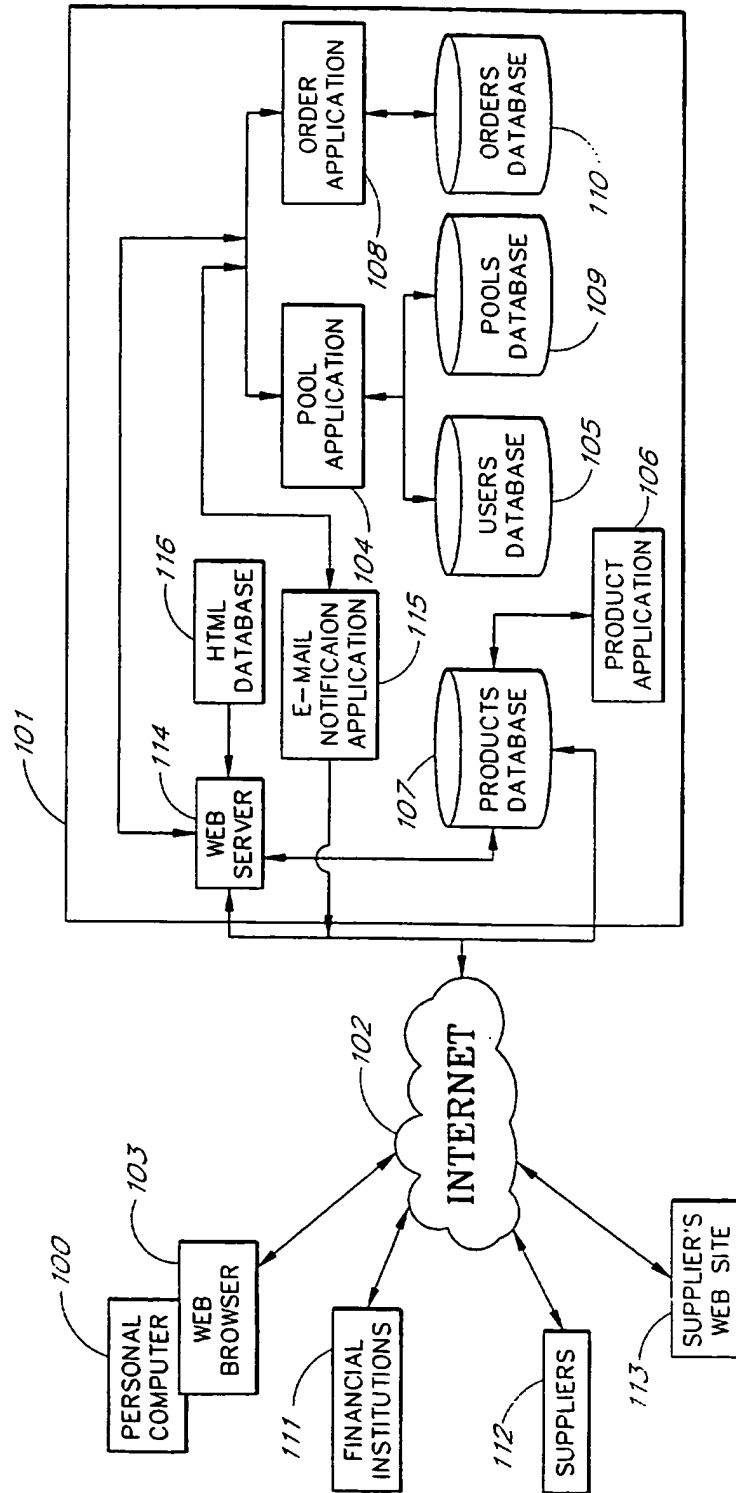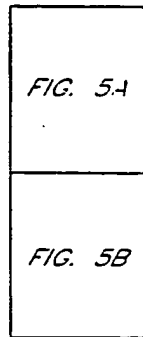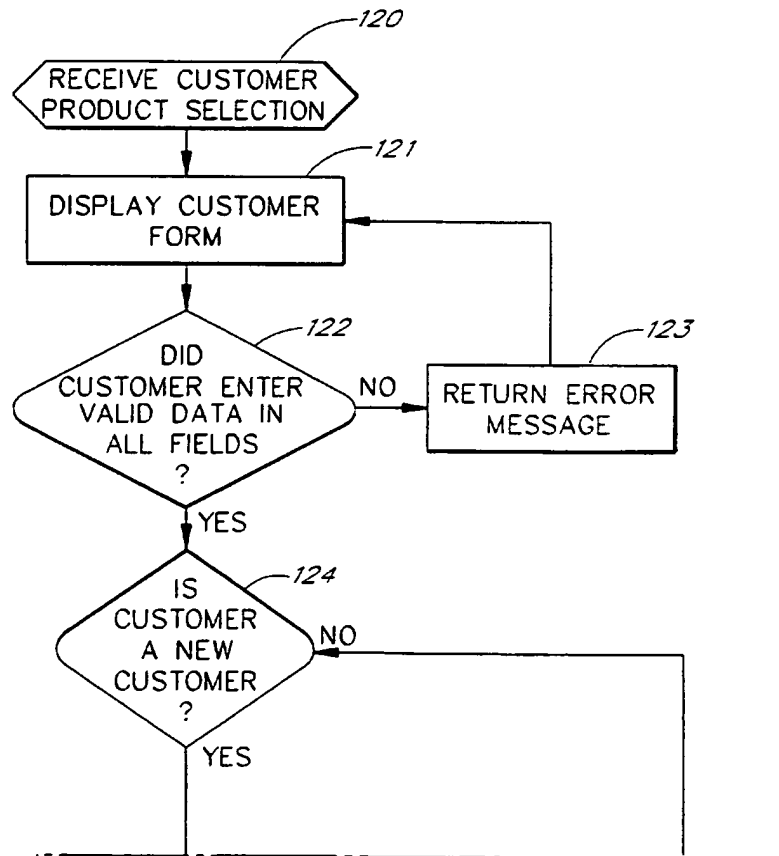
FIG. 5A
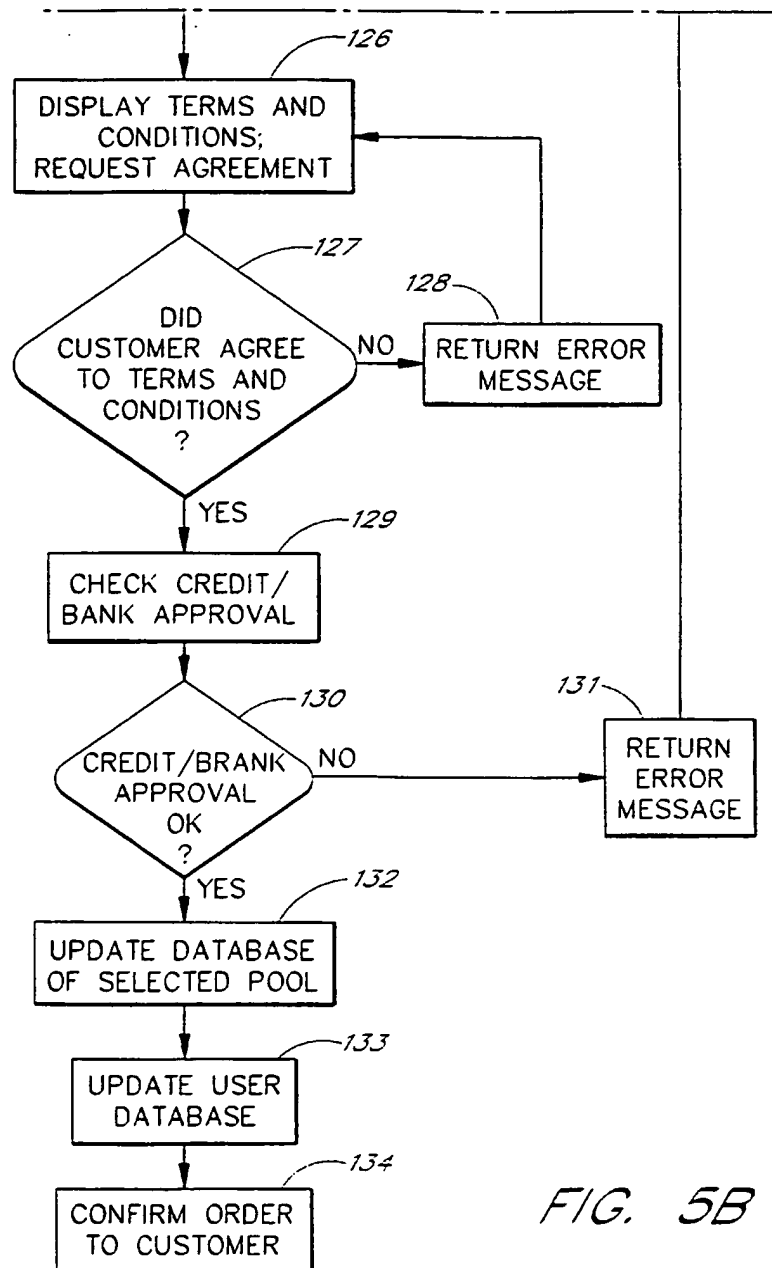
FIG. 5B

10/10
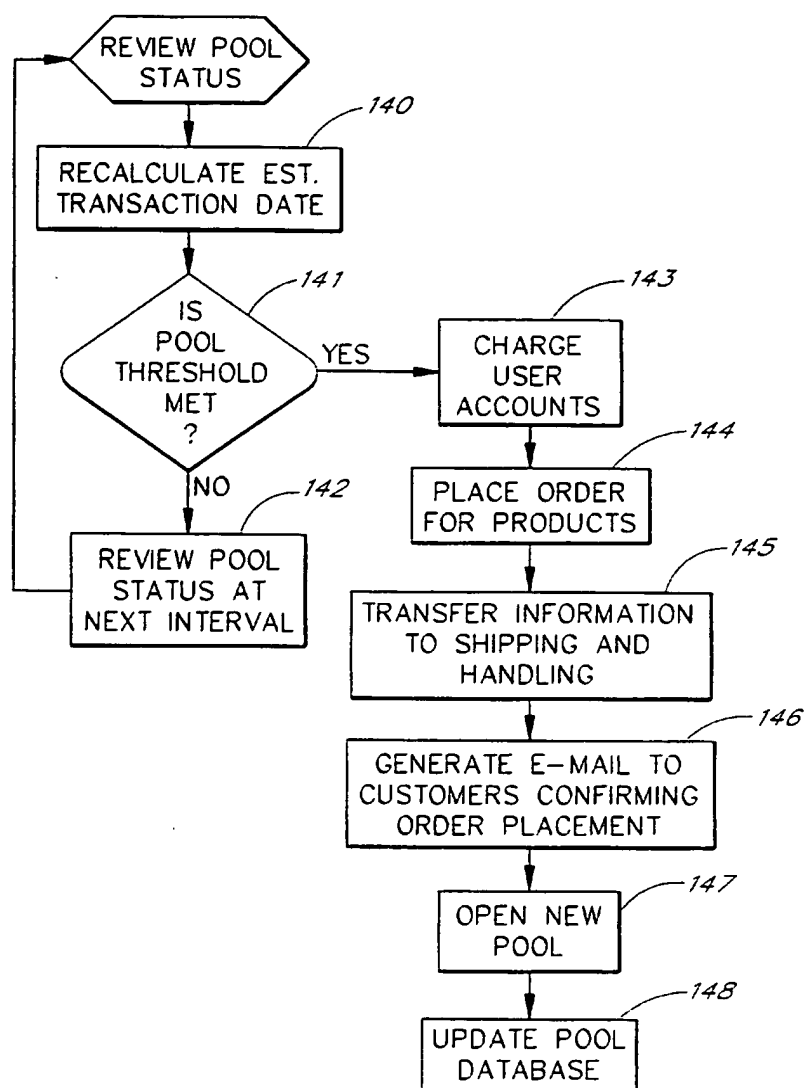
FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/00771

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) :G06F 17/60
US CL :705/14
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/14, 23, 37

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,694,551 A (DOYLE et al) 02 December 1997, Fig 3., claim 1	1-27
Y	LOTT, E. ElectricityChoice.com to close first pool of customers, expand services, Pittsbugh Business Times, 20 September 1999, p. 1-4.	1-27
A	US 5,704,044 A (TARTER et al.) 30 December 1997	1-27
A	US 5,794,219 A (BROWN) 11 August 1998	1-27
Y	GB 2 249 416 A (HASSETT et al) 06 May 1993	1-27

☐ Further documents are listed in the continuation of Box C.   ☐ See patent family annex.

* Special categories of cited documents	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	
"E" earlier document published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 MARCH 2000	**12 APR 2000**

Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	ALLAN MACDONALD
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0000

Form PCT/ISA/210 (second sheet) (July 1998)*

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

WEST, PROQUEST, IEEE, ACM, Internet Search Engines, Dialog, Dr. Link
Search terms: group buying, internet, group purchasing organization, order pooling